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09/883,674	06/18/2001	Thomas J. Nosella	CISCP185	1033
22434 7590 06/08/2010 Weaver Austin Villeneuve & Sampson LLP P.O. BOX 70250 OAKLAND, CA 94612-0250				
EXAMINER HO, DUC CHI				
ART UNIT 2465		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@wavsip.com

Office Action Summary**Application No.**

09/883,674

Applicant(s)

NOSELLA ET AL.

Examiner

DUC C. HO

Art Unit

2465

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03-10-2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Paper No(s)/Mail Date: _____

Allowable Subject Matter

1. The indicated allowability of claim 36 is withdrawn in view of the newly discovered reference(s) to Wils. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claim 1-6, 8-15, 17-24, 26-35, and 37- 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Wils et al.(US 6,397,260), hereinafter referred to as Wils.

Regarding claim 1, Wils discloses automatic load sharing for network routers. The routers R1 and R2-fig.3 function as gateways. Each host H(1-4)-fig.3 is configured to use the shared address IPC as a default router, see col.6, lines 32-47.

receiving an address resolution protocol (ARP) message from a host addressed to an address shared (IP address IPC) by a plurality of gateway devices (routers R1, R2) available for serving the hosts on the network segment (a router, R1 or R2-fig.3 having the highest configured priority for each Virtual Router, assumes Master status to receive an ARP request for IP address IPC from one of the hosts H1-H4 of the subnet

1-fig.3, wherein the IP address IPC is shared by the routers and the hosts H(1-4), see col.6-line 21 to col.7-line 44); 3

in response to the received ARP message, and based on load balancing considerations (load sharing), selecting one of the plurality of gateway devices to act as the addressee gateway device for the host (the system in fig.3 is configured to accomplish automatic load sharing, see col.6, lines 21-46. In response to the ARP request, and based on load sharing set in a predetermined manner, the master responds to the ARP request with the MAC address, i.e. MA or MB, configured for the Virtual Router that acts as the addressee gateway for the request host, see col.2, lines 37-53, and col. 6-line 64 to col. 7- line 26); *and*

replying to the ARP message with a reply message identifying the selected addressee gateway device (the master responds to the ARP request with a Virtual Router with identified MAC address, i.e. MA or MB, configured to act as the addressee gateway for the request host, see col. 6-line 64 to col.7-line 26).

Regarding claim 2, the gateway routers are layer-3 devices, see col. 3, lines 43-56.

Regarding claim 3, the shared address IP-IPC, fig.3 for routers R1 & R2 is a virtual IP address.

Regarding claim 4, the reply message from the routers R1 or R2 includes a MAC address, wherein the MAC address associates with layer-2 address, see col. 3, lines 42-55.

Regarding claim 5, the layer-2 address, i.e. MAC-MA or MB, for the addressee gateway router R1 or R2 is a virtual (secondary) address.

Regarding claim 6, Wils teaches that the system of figure 3 accomplishes automatic load sharing of forwarding traffic while retaining the improve availability benefit of VRRP (virtual router redundancy protocol), see col.6, lines 21-23. Therefore, if the router R1 being the master for virtual router A fails, the virtual router A backup router R2 will replace. The backup router R2-fig.2 would take over the failed R1 acting as the addressee gateway router for any hosts for which the failed router R1 had been serving as the addressee gateway router device.

Regarding claim 8, this claim has similar limitations as claims 1 and 6. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claims 1 and 6. The routers R1 and R2 and the hosts are all connected to the subnet 1-fig.3.

Regarding claim 9, the gateway routers are layer-3 devices, see col. 3, lines 43-56.

Regarding claim 10, this claim has similar limitations as claim 1. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 1. The router

R1 or R2 inherently includes a computer-readable medium containing programmed instructions to perform the claimed steps.

Regarding claims 11-15, these claims have similar limitations as claims 2-6, respectively. Therefore, they are rejected under Wils for the same reasons set forth in the rejection of claims 2-6.

Regarding claim 17, this claim has similar limitations as claim 8. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 8. The group comprising R1 and R2 represents a group of available gateway router available for servicing hosts on the network segment subnet 1-fig.3.

Regarding claim 18, the gateway routers are layer-3 devices, see col. 3, lines 43-56.

Regarding claim 19, please see the rejection of claim 1. The master router inherently includes a memory configured to hold the "IP-IPC", a shared address shared by the master and the backup gateway router. The address R1/VRA-fig.3 is the unique address for master gateway router for R1, and the address R2/VRB is the backup gateway router's unique address-fig.3. The master gateway router R1 or R2 inherently includes a network interface that is configured to send and receive network traffic and an ARP message from a host address to the shared address "IP-IPC". The master gateway router R1 or R2 inherently includes a processor configured to perform the claimed select and reply steps.

Regarding claim 20, the gateway routers R1, and R3 are layer-3 devices, see col. 3, lines 43-56.

Regarding claim 21, the shared address IP-IPC, fig.3 for the master and slave gateway routers R1 & R2 is a virtual IP address.

Regarding claim 22, the reply message from the routers R1 or R2 includes a MAC address, wherein the MAC address associates with layer-2 address, see col. 3, lines 42-55.

Regarding claim 23, the layer-2 address, i.e. MAC-MA or MAC-MB, for the addressee gateway router R1 or R2 is a virtual (secondary) address.

Regarding claim 24, this claim has similar limitations as claim 6. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 6. The backup router R2-fig.2 includes an inherent processor that detects the failure of the master R1 among the gateway routers, and take over the failed R1 acting as the addressee gateway router for any hosts for which the failed router R1 had been serving as the addressee gateway router device.

Regarding claim 26, this claim has similar limitations as claim 1. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 1.

Regarding claims 27-31, these claims have similar limitations as claims 2-6, respectively. Therefore, they are rejected under Wils-Gold for the same reasons set forth in the rejection of claims 27-31.

Regarding claim 32, this claim has similar limitations as claim 8. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 8. The routers R1 and R2 and the hosts are all connected to the subnet 1-fig.3 .

Regarding claim 33, this claim has similar limitations as claim 2. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 2.

Regarding claim 34, this claim has similar limitations as claim 1. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 1. The subnet 1-fig.3 is the network segment where the gateway routers and the hosts connected to for performing the claimed steps.

Regarding claim 35, this claim has similar limitations as claim 6. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 6. A router among the routers that are not configured as the master gateway router will be configured to assume responsibility for any master addressee gateway router that fails.

Regarding claim 37, this claim has similar limitations as claim 19. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 19.

Regarding claims 38-42, these claims have similar limitations as claims 2-6, respectively. Therefore, they are rejected under Wils for the same reasons set forth in the rejection of claims 2-6.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 7, 16, 25, 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wils, in view of Gold et al.(US 2005/0193080), hereinafter referred to as Gold.

Regarding claim 7, Wils discloses all claimed limitation, except a step of determining that the failed gateway device has failed permanently and redistributing addressee gateway device responsibility to other available gateway devices in the plurality of gateway devices for any hosts for which the failed gateway had been serving as the addressee gateway device.

Gold discloses aggregation of multiple headless computer entities into a single computer entity group. When the master computer has permanently failed, an administrator could unconditionally remove a slave computer entity from the group, see

0121. In other words, Gold taught a determining step to determine whether a master device, i.e. a computer or a router, had failed permanently.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to employ a mechanism in which a failed gateway or a failed gateway router is determined whether it has failed permanently as taught by Gold into the system of Wils. The suggestion/motivation for doing so would have been to provide an administrator a chance to remove the slave/backup entity of the /slave/backup gateway router unconditionally so that the backup gateway router could function as a master device for any hosts for which the failed gateway router had been serving as the addressee gateway device.

Regarding claim 16, this claim has similar limitations as claim 7. Therefore, it is rejected under Wils-Gold for the same reasons set forth in the rejection of claim 7.

Regarding claim 25, this claim has similar limitations as claim 7. Therefore, it is rejected under Wils-Gold for the same reasons set forth in the rejection of claim 7. The backup gateway router R1 or R2 inherently includes an inherent processor to perform the claimed steps.

Regarding claim 44, this claim has similar limitations as claim 7. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 7.

Regarding claim 43, this claim has similar limitations as claim 7. Therefore, it is rejected under Wils for the same reasons set forth in the rejection of claim 7.

7. Claims 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wils.

Regarding claim 36, please also see the rejection of claims 32 and 6. The hosts H (1-4), each inherently includes a mean for addressing messages to an address of a layer-3 gateway router. A layer-3 device group includes a plurality of layer-3 routers. Each host H (1-4)-fig.3 inherently includes means for distributing packets to the routers, wherein the inherent distributing means should include: means for electing one of the routers a master, and the electing mean inherently includes means for determining a priority status of the routers, and the master router will be elected on the basis of its priority, wherein the master router inherently includes means for assigning a router, i.e. R1, in the gateway routers as the addressee gateway router for packets from the host, see col.5, lines 23-28. The subnet 1-fig.1 also includes a router, i.e. R1 or R2 that inherently includes master failure means for accommodating failure of the master device (see claim 6). The subnet 1-fig.1 also includes a router, i.e. R1 or R2 that inherently includes means for assigning a successor master device (a backup device) as the addressee device for packets from the host destined for the failed master.

Wils, however, does not expressly teach a fail-over means comprising slave failure means for accommodating failure of one of the devices that is not the master device in the device group.

Wils as shown in FIG. 2, router R1 is the Master for Virtual Router A, while router R2 is a backup for Virtual Router A. Similarly, router R2 is Master for Virtual Router B, while router R1 is a backup for Virtual Router B. RFC 2338 specifies the manner in which a Master is selected during initialization and also during operation when a failed

Master is to be replaced by a backup. There may be more than two routers participating in a Virtual Router, in which case the single Master router is backed up by multiple backup routers. The backup routers are assigned different priorities for assuming Master status when necessary, as described in RFC 2338, see col. 5, lines 17-28. When a failed master router is to be replaced by a backup, which is an elected backup in this case, and since a master is backed up by multiple backup routers, therefore if the elected backup fails, one of the backup of the multiple backup routers would follow the same rule of choosing "backup for a failed master" or choosing "backup for the "failed elected backup"" so that packets can be forwarded to the functioning backup for the failed elected backup that replaced the failed master.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to employ a mechanism in which a failed elected backup router could be replaced by a functioning backup router. The suggestion/motivation for doing so would have been to provide extra redundancy and reliability for gateway services for a common IP subnet, not only for the failed master router but also for the elected backup router.

Response to Arguments

8. Applicant's arguments with respect to claims 1-35, and 36-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Thursday from 7:30 am to 6:00 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

/DUC C HO/

Primary Examiner, Art Unit 2465

Application/Control Number: 09/883,674
Art Unit: 2465

Page 13

06-03-2010